

1 WHAT IS CLAIMED IS:

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~~1. A transmitter used in a CDMA mobile communication system comprising:~~

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~~a pilot channel transmit unit which intermittently transmits a pilot signal in a spread spectrum formation; and~~

~~traffic channel transmit units which respectively transmit data signals in respective traffic channels.~~

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2. The transmitter as claimed in claim 1, wherein said pilot channel transmit unit comprising:

a pilot data generator which generates pilot data;

a first modulator which modulates the pilot data;

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a second modulator which despreads a spectrum of modulated pilot data from the first modulator to thereby generate said pilot signal; and

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a timing generator which generates a timing signal applied to at least one of the pilot data generator and the first and second modulators so that the pilot signal can be intermittently transmitted.

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3. The transmitter as claimed in claim 1, wherein the pilot signal has a period shorter than an interval at which the pilot signal is intermittently

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1 transmitted.

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~~4. A receiver used in a CDMA mobile communication system comprising:~~

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10 a pilot channel receive unit which demodulates pilot signals respectively transmitted intermittently in a spread spectrum formation by transmitters and detects, from the pilot signals, a timing for a traffic channel demodulation; and

15 a traffic channel receive unit which demodulates data at the timing detected by said pilot channel receive unit.

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5. The receiver as claimed in claim 4, wherein said pilot channel receive unit detects the timing for the traffic channel demodulation by comparing peaks of the pilot signals intermittently transmitted, the timing for the traffic channel

25 demodulation corresponding to a greatest one of the peaks.

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6. The receiver as claimed in claim 4, further comprising an estimating unit which estimates states of paths from the pilot signals intermittently transmitted.

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1 7. The receiver as claimed in claim 6,
wherein the estimating unit supplies the traffic
channel receive unit with information necessary to the
traffic channel demodulation and based on an estimated
5 state of the path to be demodulated.

10 ~~8. A CDMA mobile communication system~~
comprising transmitters and receivers;
each of said transmitters comprising:
a pilot channel transmit unit which
intermittently transmits a pilot signal in a spread
15 spectrum formation; and
traffic channel transmit units which
respectively transmit data signals in respective
traffic channels,
each of said receivers comprising:
20 a pilot channel receive unit which
demodulates pilot signals respectively transmitted
intermittently in the spread spectrum formation by the
transmitters and detects, from the pilot signals, a
timing for a traffic channel demodulation; and
25 a traffic channel receive unit which
demodulates data at the timing detected by said pilot
channel receive unit.

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 9. The CDMA mobile communication system as
claimed in claim 8, wherein said transmitters
35 intermittently transmit the pilot signals with time
offsets.

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1 10. The CDMA mobile communication system as
claimed in claim 9, wherein said transmitters
intermittently transmit the pilot signals with the
time offsets so that the pilot signals are serially
5 transmitted one by one.

10 11. The CDMA mobile communication system as
claimed in claim 9, wherein said transmitters
intermittently transmit the pilot signals with the
time offsets so that only one of the pilot signals is
transmitted at any time.
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20 12. The CDMA mobile communication system as
claimed in claim 9, wherein said transmitters
intermittently transmit the pilot signals with the
time offsets so that a time period is provided during
which none of the pilot signals are transmitted.

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~~13. A CDMA mobile communication method
comprising the steps of:~~

~~a) transmitting, on transmit sides, pilot
signals in a spread spectrum formation;~~

~~b) demodulating, on a receive side, the
pilot signals respectively transmitted intermittently;
and~~

35 c) detecting, on the receive side, from the
pilot signals, a timing for a traffic channel
demodulation.

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1 14. The CDMA mobile communication method as
claimed in claim 13, wherein the step a) comprises the
step of intermittently transmitting the pilot signals
with time offsets.

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10 15. The CDMA mobile communication method as
claimed in claim 14, wherein the step a)
intermittently transmits the pilot signals with the
time offsets so that the pilot signals are serially
transmitted one by one.

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20 16. The CDMA mobile communication method as
claimed in claim 14, wherein the step a)
intermittently transmits the pilot signals with the
time offsets so that only one of the pilot signals is
transmitted at any time.

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30 17. The CDMA mobile communication method as
claimed in claim 14, wherein said step a)
intermittently transmits the pilot signals with the
time offsets so that a time period is provided during
which none of the pilot signals are transmitted.

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